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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,628	08/31/2001	Gary Q. Jin	11775-US	9081

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EXAMINER

QURESHI, AFSAR M

ART UNIT	PAPER NUMBER
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2616

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/942,628

Applicant(s)

JIN, GARY Q.

Examiner

Afsar M. Qureshi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 10-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3,10-24 and 30-35 is/are allowed.
- 6) ☒ Claim(s) 25-29,36-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is responsive to RCE and Amendment received on 11/10/2006.

Response to Arguments

- 2a. Applicant argued (11/10/2006) that the finality of the Office Action, mailed on 5/11/2006, was premature. According to records, available to Examiner, a Non-Final Office Action was mailed on 11/22/2005, subsequent to that an Amendment After Non-Final was received on 02/21/2006. Examiner issued Final rejection because the Applicant's amendment necessitated new ground (s) of rejection presented in that Office Action. The Examiner contends that the Final rejection, mailed on 5/11/2006, was appropriate.
- 2b. The amendments, dated 11/10/2006, are entered as requested. However, amendments to claims 25-29 and 36-40 (*separating the sub-band signals...*) are not supported by the Specification (ref: telephonic Interview) as under:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 25-29, 36-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. "Separating the sub-band signals...", as claimed in claims 25 and 36, is not supported by the Specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 25 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Wallace et al. (US 6,473,467).

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Wallace et al. disclose a communication system comprising the following features:

regarding claim 25, A receiver (FIG. 6, RECEIVER) for use in a broad bandwidth, high data rate communications system employing Fast Fourier Transform FFT (FIG. 6, FFT 614A, 614R), in which transmitted signals are divided into sub bands and converted using, for each sub band signal, a respective one of a plurality of Inverse Fast Fourier Transforms IFFTs (FIG. 3, IFFT 320A, 320B, 320T), the receiver (FIG. 6, RECEIVER) having: means for receiving a plurality of subband signals in said corresponding plurality of sub bands; and means for performing Fast Fourier Transform upon the received sub band signals using, for each sub band signal, a respective one of a plurality of different FFTs (FIG. 6, FFT 614A, 614R) corresponding to the IFFTs (FIG. 3, IFFT 320A, 320B, 320T);

regarding claim 36, A method of processing received signals in a receiver (FIG. 6, RECEIVER) in a broad bandwidth, high data rate communications system employing Fast Fourier Transform FFT (FIG. 6, FFT 614A, 614R), in which transmitted signals are divided into sub bands and converted using, for each sub band signal, a respective one of a plurality of Inverse Fast Fourier Transforms IFFTs (FIG. 3, IFFT 320A, 320B, 320T), the receiving method comprising the steps of receiving a plurality of said sub band signals in a corresponding plurality of sub bands; and performing Fast Fourier Transform upon the received sub band signals using, for each sub band signal, a respective one of a plurality of different FFTs (FIG. 6, FFT 614A, 614R) corresponding to the IFFTs (FIG. 3, IFFT 320A, 320B, 320T). See column 1-29.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims, 26, 27, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace et al. (US 6,473,467) in view of Murakami (US 6,317,409).

Wallace et al. disclose the claimed limitations above.

Wallace et al. fail to disclose the following features: regarding claim 26, wherein the receiver further includes pass band filters to isolate desired sub band frequencies; regarding claim 27, for use with received sub band signals that have been modulated separately prior to implementation of the IFFT and up sampled, the receiver having corresponding down sampling means and a corresponding demodulator; regarding claim 37, wherein the receiver a received signal is filtered using pass band filters to isolate desired sub band frequencies; regarding claim 38, for processing received sub band signals that have been modulated separately prior to implementation of the IFFT and up sampled, the method comprising the steps of down sampling and demodulating the received sub band signals using a complementary demodulator and down sampling rate.

However, Murakami discloses a communication system comprising the following features:

regarding claim 26, wherein the receiver further includes pass band filters (FIG. 1, $Q_0(z)$, $Q_1(z)$; column 4, lines 20-22; column 5, lines 28-43) to isolate desired sub band frequencies;

regarding claim 27, for use with received sub band signals that have been modulated separately prior to implementation of the IFFT (FIG. 2, M-point IFFT 120) and up-sample (FIG. 2, up-sampler 130) d, the receiver having corresponding down-sampling (FIG. 10, down sampler $\sim M$) means and a corresponding demodulator (FIG 1, demodulator 5);

regarding claim 37, wherein the receiver a received signal is filter (FIG. 1, $Q_0(z)$, $Q_1(z)$; column 4, lines 20-22; column 5, lines 28-43)ed using pass band filters (FIG. 1, $Q_0(z)$, $Q_1(z)$; column 4, lines 20-22; column 5, lines 28-43) to isolate desired sub band frequencies;

regarding claim 38, for processing received sub band signals that have been modulated separately prior to implementation of the IFFT (FIG. 2, M-point IFFT 120) and up-sample (FIG. 2, up-sampler 130) d, the method comprising the steps of down-sampling (FIG. 10, down sampler $4M$) and demodulating (FIG 1, Modulator 3) (FIG 1, demodulator 5) the received sub band signals using a complementary demodulator

(FIG 1, demodulator 5) and down-sampling (FIG. 10, down sampler 4•M) rate. See column 1-14.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system Wallace et al., by using the features, as taught by Murakami, in order to provide an efficient data communication without inducing inter-channel interference. See Murakami, column 2, lines 28-34.

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace et al. (US 6,473,467) in view of Murakami (US 6,317,409) as applied to claims 17, 2, 3, 20-22, 25-27 above, and further in view of Kim et al. (US 6,690,717).

Wallace et al. and Murakami disclose the claimed limitations above. Wallace et al. and Murakami do not disclose the following features: configured for receiving said sub-band signals in the form of Discrete Multi-tone DMT signals via a Digital Subscriber Line DSL.

Kim et al. disclose: configured for receiving said sub-band signals in the form of Discrete Multi-tone DMT signals via a Digital Subscriber Line DSL (column 2, lines 56-67).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system Wallace et al. and Murakami, by using the features, as taught by Kim et al., in order to provide a broader bandwidth and

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transmit with better quality of data. See Kim et al., column 2, lines 46-51.

7. Claims 29, 39, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace et al. (US 6,473,467) in view of Kim et al. (US 6,690,717).

Wallace et al. discloses the claimed limitations above. Wallace et al. does not disclose the following features: regarding claim 29, configured for use with a Very high rate Digital Subscriber Line VDSL; regarding claim 39, wherein said sub band signals are received in the form of Discrete Multi tone DMT signals via a Digital Subscriber Line DSL; regarding claim 40, wherein said sub band signals are received via a Very high rate Digital Subscriber Line VDSL.

Kim et al. discloses a communication system comprising the following features: regarding claim 29, configured for use with a Very high rate Digital Subscriber Line VDSL (column 2, lines 56-67);

regarding claim 39, wherein said sub band signals are received in the form of Discrete Multi tone DMT signals via a Digital Subscriber Line DSL (column 2, lines 56-67);

regarding claim 40, wherein said sub band signals are received via a Very high rate Digital Subscriber Line VDSL (column 2, lines 56-67).

b

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system Wallace et al., by using the features, as taught by

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Kim et al., in order to provide a broader bandwidth and transmit with better quality of data. See Kim et al., column 2, lines 46-51.

Allowable Subject Matter


8. In light of the arguments presented (11/10/2006), claims 2, 3, 17-24 and 31-35 are allowed over prior art of record.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Afsar M. Qureshi whose telephone number is (571) 272 3178.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Field Lynn can be reached on (571) 272 2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



AFSAR QURESHI
PRIMARY EXAMINER

1/7/2007